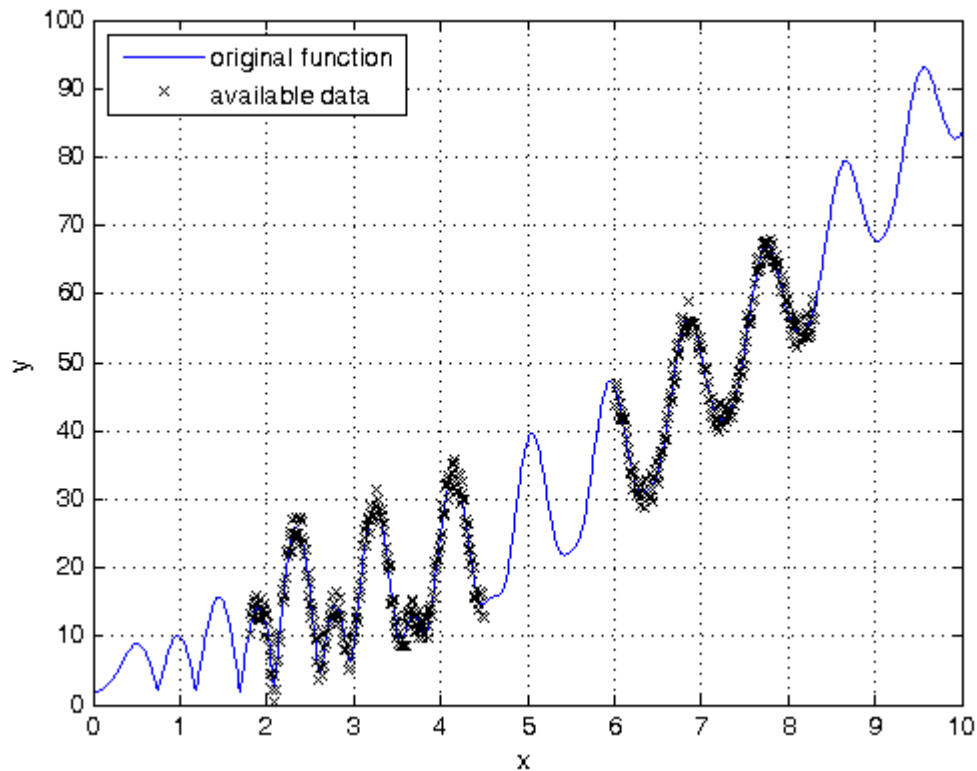


# Function approximation with a GRNN

```
% =====  
% PROBLEM DESCRIPTION:  
% Create a function approximation network based on a measured data set.  
% =====  
% NEURAL NETWORK course example by Primož Potocnik, 2010.  
% Optimized for MATLAB 2010b with Neural Network Toolbox 7.0  
% =====  
close all; clear; clc
```

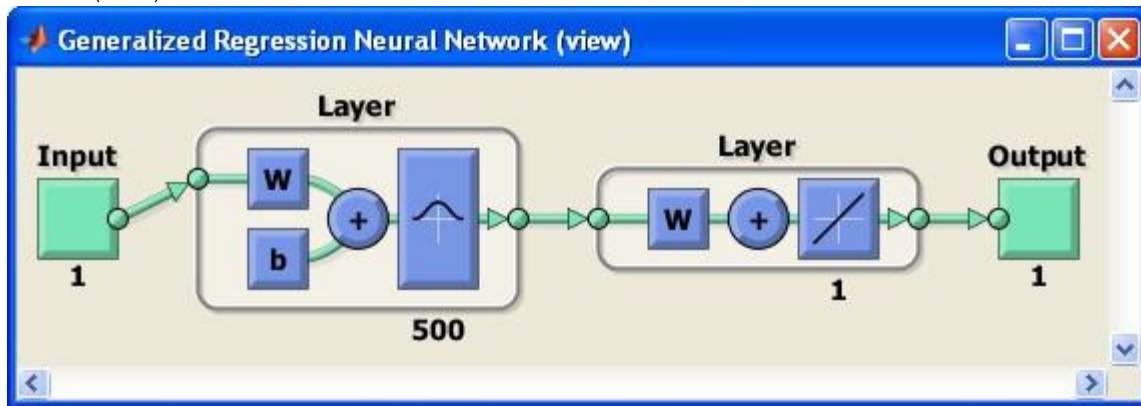
## Prepare data

```
% data generator  
t = 0.01:.01:10;  
f = abs(besselj(2,t*7)).*asind(t/2) + (t.^1.95)) + 2;  
plot(t,f,'b-')  
hold on  
grid on  
% available data points  
y = f + 5*(rand(1,length(f))-0.5);  
x = t([181:450 601:830]);  
y = y([181:450 601:830]);  
plot(x,y,'kx')  
xlabel('x')  
ylabel('y')  
legend('original function','available data','location','northwest')
```



## Create a GRNN

```
% choose a spread constant
spread = .12;
% create a neural network
net = newgrnn(x,y,spread);
% view net
view (net)
```



## Evaluate network performance

```
% simulate a network over complete input range
Y = net(t);
% plot network response
plot(t,Y,'r')
ylim([0 100])
legend('original function','available data','neural
net','location','northwest')
```

